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ANCIENT EGYPT

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HALF CENTURY CELEBRATION.

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FIFTY YEARS' EXPERIENCE OF DIGGING.

This year we can look back upon twenty-five years of the British School of Archaeology in Egypt, and upon fifty years of my own work. In that time, the changes in our views of man's history have been as great as those in every other direction. The conditions of life have altered in every respect, not only at home but all over the world. There has never been a more rapidly advancing age in man's history; a world where our knowledge of civilisation only began with the Pyramid age, and where we were in complete ignorance of the commonest things of ancient times, would now seem as strange as a world without motors, or aeroplanes, or wireless or radium.

When I first went to Egypt to measure the pyramids fifty years ago, there was mystery as to what went before them. There were long periods entirely hidden from us—three dynasties, five prehistoric civilisations, and the vast neolithic and palaeolithic ages of Egypt. Dr. Birch begged me to bring back a boxful of potsherds from each great town, as he hoped that thus the traditional history might serve to date them,—we now know how futile that was. No one could say whether common blue beads were late or early, or how soon beads were made. The whole conception of having a corpus of types, all dated, had yet to be imagined. Records of tomb-groups did not exist. Nothing about the history of hieroglyphs was known. There was no sense of the changes of style and character in each period, all were alike "ancient Egyptian," reputed to be unchanged for ages. No link between Egypt and Europe was regarded before Alexander; the Egyptian was supposed to have been isolated from the world in a hermit kingdom apart, a land of "mysteries." Even the slight attempts at archaeology were deceptive; Lepsius had published one page of pottery as being of the pyramid age, but it was really thousands of years later.

In 1880 I went to the pyramids, and, though excavations were forbidden, two years' research there opened our eyes. The mere fragments that were lying about showed what powerful means the builders had, in their jewelled saws and tube drills and facing plates. Measurement of the pyramid during two seasons demonstrated the marvellous accuracy of which they were capable and proved what intelligence they must have had. Excavation was permitted in the Delta, and after a season in 1884 at Tanis, methods of regular excavating, and payment for objects found, became fairly established; the great number of papyri which I obtained there, however, have never yet been worked over.

The finding of Naukratis, 1885, by tracing the source of a statuette which I bought, led to knowing the older Greek world, and finding the origin of the little mock Egyptian amulets that were sent over to Rhodes and elsewhere. The abundance of Greek pottery from many sources brought to light the active connections with Egypt. Here Griffith and Ernest Gardner both began their field work with me.

A little earlier in age were the things from Daphnae found in 1886, which yielded some fine Greek vases of rare styles, dating between 664 and 564 B.C. This site also linked up with the Jews a century before the fall of Jerusalem, and with the time of Jeremiah and the fugitives of the royal family of Judah who sheltered there.

A season on the monuments of Upper Egypt in 1887 served to collect the best portraits of foreign races, by means of casts and photographs. The multitude of early inscriptions on the rocks at Aswan were copied, and the Dahshur pyramids partly surveyed.

The Fayum region was a rather neglected district, and in 1888 I was allowed to try it, as well as a dealer sent there to compete with me. After a few weeks spent on clearing up the colossi of Amenemhat III at Biahmu, I had trained a gang of men who would go with me into the desert at Hawara, where we attempted the pyramid, but could not enter it until the following year. During this work we came across the painted wax portraits of Roman age, and by a large series fixed the period of such work. In 1889, in the Hawara pyramid we finally tunnelled into the funeral chamber, which was formed of a single block of stone, and there found the name of Amenemhat III, and of his daughter Ptah-neferu. We also discovered in the cemetery the most complete series of precious amulets known, in the tomb of Horuza (now in Cairo), and I began to work on the xiith dynasty town of Kahun and the xviiith dynasty town of Gurob. These, completed in 1890, gave us for the first time the domestic detail of houses and objects of those ages: the plan of Kahun is always quoted as the standard example of Egyptian planning. The papyri found here contained the only known examples of early wills and early poetry.

Other discoveries of great historic value were the Aegean pottery of the xviiith dynasty at Gurob, and the Kamares pottery of the xiith dynasty at Kahun. These first gave a fixed relation between Egypt and prehistoric Greece, and serve for a European time-scale. This Fayum work was rounded off by the opening of the pyramid of Lahun, which was dated to Senusert II. After this, I went to Palestine and began the excavation of Lachish.

Next, in 1891, the pyramid and tombs of Meydum were examined. The much disputed date of that pyramid was fixed by the graffiti about Sneferu on the perfect little temple, the earliest then known, and still the only complete temple of such antiquity. The painted tombs were copied, facsimile, in full size; this was the first time that dry-squeezing on paper was adopted, a method which we generally followed later. The delicate detail of the carving gave great impetus to the understanding of the origins of hieroglyphs. Bliss began his excavating in this work.

With great difficulty, I at last won permission to excavate in the South, and went to Tell el Amarna in 1892, though I was forbidden to open any tombs. That was untouched ground, except to native plunderers. In a few months all the historical facts were worked out, to which scarcely anything has since been added. The amazing revolution in art and in ethics disclosed here threw a new light on Egyptian culture. The painted pavement of the palace (since destroyed) was the most complete that has been seen. The historical connection with Greece was proved by the abundance of Greek pottery in the rubbish-heap of the palace. As this is dated within a few years, it gives the precise stage of Aegean pottery at a fixed date. Here Howard Carter began his work with me.

At this point a serious illness kept me from field work, and the new position of a professorship at University College affected all my future. But in eleven years the Egyptian and Greek archaeology had been firmly established as far back as the xiith dynasty, with partial insight on the early pyramid age. Such was a basis for the much more remote researches that were to follow.

After a rest in Italy in 1893, during which I secured 500 photographic negatives of Egyptian remains in the museums, a fresh start was made at Koptos in 1894. This took us back to the work of Antef, of the early xiith dynasty, and the great prehistoric colossi of Min, the only such figures that have been found. Much that was discovered there, we could only understand by subsequent prehistoric research. Quibell and Grenfell began here.

The next year, 1895, we crossed the Nile and opened up the abundance of the prehistoric periods at Naqada. There was no comparison known for such a civilisation, and it was not until it could be linked to the first dynasty that its real position was ascertained. The great mass of new forms to be drawn compelled the beginning of the *Corpus* system, whereby a reference to numbered types saves the repetition of the drawings for each group. This step in organization has controlled all scientific publication since. It is strange to realise that down to 1895 only stray examples of such prehistoric objects had been found, and ignored as unintelligible; now, suddenly, the entirely new series was spread before us, with its profusion of stone vases, from two thousand tombs; since then, such material is commonly found. Duncan began his career as excavator here.

After this, I was allowed at last to touch Thebes, and opened up the sites of six royal temples. Two landmarks appeared in this work, the great stele of Merneptah naming the people of Israel, and the xiith dynasty papyri which contained literature of the first order, such as the coronation service of Senusert I.

In 1897, though all the Memphite region was barred to research, some Old Kingdom tombs were to be had at Deshasheh. In one of these is the earliest picture of a siege, giving details of scaling-ladders and the sapping of walls. A group of fine statues was also obtained.

Work in the south was resumed at Dendereh in 1898, where my wife, and Mace, Randall-MacIver, and N. de G. Davies all began their archaeological careers. The main result here was linking up the art of the Old and Middle Kingdoms by a series of tomb sculptures from the vith to the xith dynasties. Quibell was still on my student fund and, with the assistance of Somers Clarke, had branched off to discoveries at Hierakonpolis; these gave us the monuments of Nar-mer and Kho-sekhemui with other great results of the early dynasties.

A long group of cemeteries near Hu occupied our work in 1899. These supplemented the researches at Dendereh by giving the stone vases and the seals of the vith to xiith dynasties. Other cemeteries produced a great quantity of prehistoric remains. By using these, and recasting our results from Naqadah, it was possible to study over a thousand tomb-groups which had at least five varieties of pottery in each. From these, the relative order could be traced by the changes of types. This originated the system of Sequence Dates, fixing the order of development, which has been generally accepted since then as a standard.

Then followed the four years at Abydos, 1900–3, which put into shape the civilisation of the 1st and iind dynasties, and the exact development of the

Royal Tombs, the arts and the writing of that time. The later system in the xiith and xviiith dynasties of duplicated royal tombs was discovered; in the city, ten successive temple plans were disclosed; the ivory statuette of Khufu and earlier pieces, besides rich private tombs were found. Here Weigall, Ayrton, Garstang, Currelly, Mrs. Firth and Mrs. Cockerell all began their archaeological studies. We had now consolidated our view of civilisation through the dynastic ages and three periods of prehistoric life. After this there remained the filling up of details during the next decade.

Maspero having withdrawn the promise of work at Saqqarah, I was suddenly obliged in 1904 to fall back on Ehnasya, and work out the temple site there which did not materially advance us.

Sinai was an interesting adventure in 1905; we had to march six days into the desert and keep a camp of thirty workers there for some months. The results were manifold. We completely copied all the monuments, finding many unknown before; obtained an insight on the organization of the Egyptian mining expeditions there recorded; and found a new script used by the Semitic levies, mingling a cursive writing of their own with some borrowed hieroglyphs.

In 1906 the Wady Tumilat was searched. Beginning at Tell el Yehudiyeh, we found the camp of the Hyksos, buried under later ruins, and traced it round; also a few Hyksos tombs, the only ones recorded in Egypt. This gave us some footing between the xiith and xviiith dynasties. Of later times, we traced out the new Jerusalem which was set up by Onias, and thus confirmed the record of Josephus. Going on into the Wady Tumilat, we pitched at Tell Retabeh, and found that it was a city of the xviiith and xixth dynasties, with a temple of Ramessu II, and the only city of that age between the land of Goshen and Pithom; this fixed it as being the treasure-city of Raamses.

Hearing that a tomb of the 1st dynasty had been found at the south of Gizeh, and that ground there was to be had, we pitched on that in 1907. There we obtained much more of the 1st dynasty, exactly dated, beside finding a great mastaba of the iind dynasty, and one of the largest sculptured tombs of a late age. Moving on to the south, we cleared the cemetery of Rifeh near Asyut, and found the long series of pottery house-models of the ixth–xith dynasties, which showed all the details of the country houses and their furniture. Such were placed for the soul by the tomb, and they presented a view of the peasant life of which nothing had been known. Firth began his career on the Gizeh work, and Ward, of the Edinburgh Museum, and Ernest Mackay joined me this year.

Next year, in 1908, we began by clearing a late temple of Athribis, near Sohag, and found the only private tomb with painted horoscopes. I copied and planned many tombs of the Old Kingdom, and we searched the late Roman town near the White Monastery, and found the site of the first great church; this had been removed and the material re-used in building the Monastery Church. All this was while we waited for the water to subside at Memphis, where we hoped for monuments of historic importance. Here we began the heavy task of clearing part of the great site of the old temple below water level. The chances of results kept us at this for six years. Such work below water level was a novelty, and needed close organizing. The ground was lowered about two feet, to just above water: a drain was cut through it, and then

pumped with large rubber pumps day and night by four gangs of men, so as to keep the water two or three feet lower. Then each day a square pit was sunk by men digging and baling into the canal; this went down six or seven feet until the water squirted in too quickly for the buckets. The hole was then abandoned, after going ten or twelve feet below the surface, and another pit was sunk alongside, next day. We cleared many acres of the temple site, finding the colossal alabaster sphinx of Amenhetep III which we set up there, also a granite sphinx of Ramessu II, now in Philadelphia, and another colossus of that king. But no historical results of value were reached before Maspero stopped the work by larger claims on the proceeds. It ought certainly to be done, but could not be worth while under the present claims of government. Wainwright began his career in this work.

For the early season, in 1909, we went to Qurneh, and found two historical steles of the xith dynasty, and a perfect burial of the xviith, with a gold collar of a new type. It is only kin to the remarkable collars found in Sweden, and is on the same standard of weight, but the original source of all these is yet unknown. The ruins of the temple of Sonkh-ka-ra of the xith dynasty were cleared, and the pieces of his *sed-heb* statue found there.

We began next season, 1910, by returning to Meydum, to open the mastabas, which were yet unknown. The great stone mastaba contained a granite sarcophagus finer than that of Khufu, but had been opened long before by some one who knew the plan. The mastaba of Nefermaot and Atet had been utterly plundered, and the body of Atet broken to chips by the very men who closed the tomb with liquid mud poured into the passages. We tunnelled under the pyramid up to the face of the inner core, to see whether there were any shrine on the inner face, but we retrieved nothing except the quarry dates on the stones.

The early season of 1911 was occupied, at Maspero's request, by going to recover more of the Hawara wax portraits. So many were found that we issued a portfolio of 24 of the finest of these and portraits found before: this gives the public an idea of the skill which lay in an out-of-the-way province during the iind century. The Labyrinth ruins were also searched, and two colossal granite shrines with figures of Amenemhat were found. Some pieces of figures of the gods are the only divine statues known of that age.

The year 1912 was marked by beginning the great cemetery of the early 1st dynasty at Tarkhan. This opened to us the junction of the native and the intrusive dynastic race, and gave us a large variety of the domestic productions. In the next season, 1913, two large mastabas were found, with many varieties of fine linen of the 1st dynasty, in perfect condition, and of great interest in the history of weaving. This site enlarged our view of the actual life, and of the great timber houses which belong to the rise of the dynasties. Lawrence, of Arab fame, and Engelbach joined us in this work. Heliopolis was also attempted, and another Hyksos camp found, like that at Yehudiyeh; much of another granite obelisk, of Tehutmes III, was recovered by deep digging; but further work was stopped by the raising of the government claims.

In 1914 we returned to Lahun to search round about the pyramid. The surroundings were exhaustively cleared, and six great rock mastabas found, only one of which covered a tomb. Two other great tombs were opened, but both had been plundered of everything that was obvious. In that of a princess, however, a recess full of hard mud contained a mass of jewellery which rivalled

that of the celebrated treasure of Dahshur. This gave us in some respects a fresh view of the skill of the xiith dynasty, and the half of the treasure granted to the School, enabled the outside world to appreciate the beauty and refinement of the craft of this age. The Bruntons began excavating in this season.

Then the terrible blight of the Great War fell upon us, sweeping all our students into its grasp. I was refused for any service, and was ordered to keep to the College. So I was able to carry out my intention of thirty years before, that when I was sixty I would write up a library of archaeology. I had already done one volume, on Amulets, and now it was possible to get the time to write up and illustrate the volumes on Name Scarabs and Cylinders, Tools and Weapons, Prehistoric Egypt, Buttons and Design scarabs, Weights and Measures, Glass Stamps, and Objects of Daily Life, all now published; also to write Ushabtis, Stone and Metal Vases, Funeral objects, Glass and Glazes, which yet await publication. The twenty years' work since I came to University College had carried back our knowledge from the xiith dynasty to a full view of the 1st and iind dynasties and of three prehistoric ages before that, and had linked Crete with the 1st dynasty.

It was not possible to resume digging after the War till 1920. Then we went back to finish the clearance of the Lahun cemetery. There we found a large area of the 1st and iind dynasties with a variety of types of graves, which added to our idea of the extent and variety of custom in that age. It is strange how long Egypt was explored without finding any early remains; but when once familiar with the Tombs of the Kings, there followed similar discoveries at Gizeh, Tarkhan, Lahun, Sedment, and again at Abydos.

After searching the desert south of Lahun, we settled at Sedment in 1921. The place had been given up by two previous parties as being hopelessly exhausted. However in the course of clearing the country southward, it lay in our track. Here we recovered large untouched tombs of the iind dynasty, with all their vases of stone and metal, the finest wooden statuettes of the vith dynasty, an abundance of groups of servants of the ixth–xith dynasties, and the finest painted stele of the xviiith dynasty, beside a multitude of other objects. These were welcome additions to our knowledge of those ages.

Knowing that some more graves like those of the 1st dynasty had been found at Abydos before the War, we asked for a concession to return there in 1922. Thus we found the three great squares of graves of Courtiers of the 1st dynasty. These amplified our knowledge of the ivory carving and flint work, beside the engraved copper tools of that age. From there we went on to try if anything could be found at low levels at Oxyrhynkhos. All that was accessible was Roman work of a theatre, with the oldest spiral stair newel, and tombs of the age of Justinian which had interesting details of sculpture. Some of the earliest Hebrew papyri of the iind century were found in the town, while, on crossing to the other side of the Nile, we saw in a re-used tomb a large quantity of Aramaic writing. This proved to be the records of a family, probably Jewish, settled here as early as Tirhaka, that is, in the reign of Manasseh a century before the fall of Jerusalem. Miss Caton-Thompson started her prehistoric work here, and Bach joined us.

In 1923, which I spent writing in London, the Bruntons with Miss Caton-Thompson, Starkey and Bach went to Qau and worked north of that. The great result was the finding of pottery different from any known before, which

Miss Caton-Thompson, in the next year, proved to be earlier than all the prehistoric civilisations yet known. From the district in which it was found, we named it the Badarian. The Coptic papyrus of St. John's Gospel, the earliest after the Vatican M.S., was discovered in this year.

In 1924 I went out to settle at Qau while others went on with Badari. The examination of the great rock tombs of the Uahka family proved that they were of the ixth or xth dynasty, probably of Nubian type, and that the family was of Galla origin, from whom descended the great kings of the xiith dynasty. This greatly helped to consolidate the vague history of that age. I also discovered many very ancient human bones, almost certainly palaeolithic, for which we yet await geological discoveries in order to assess their position. Wheeler joined the work here.

Having much writing in hand, I spent two years in London, while in 1925 and 1926 our expedition was working out the Badarian and early Fayum cultures. The position in Egypt was unhappy under new and impossible regulations, the scope of historical discovery was almost filled up by all that had been done, and in every way it seemed more important to take a fresh field on the borders of Egypt in contact with Palestine civilisations. There we could hope to follow out the Egyptian rule in Palestine, and so fix the age of each of the native cultures, which was but vaguely known. This has proved to be the most fertile source of Egyptian history.

In 1927, therefore, we sampled the mound of Gerar, and recovered six successive town levels, from the Persian to the xviiith dynasty, dated by the Egyptian remains. This provided an exact dating of all the pottery, giving a key to the history of the rest of Palestine. The furnaces and tools gave the early history of iron, and the general antiquities supplied a much needed basis for the archaeology. Harding began to work here.

After this the great frontier fortress of Beth-pelet has been worked in 1928 to 1930. It has filled up the outline of the Hyksos period, which was scarcely known in Egypt, and also of the Philistine civilisation, beside opening a wide range of the palaeolithic and neolithic ages. The historical place of the Hyksos has been fixed, and the chronology explained. Meanwhile Brunton, branching from our work, has found the Tasian age, the oldest yet defined in Egypt. In book work also advances have been made, Duncan has incorporated all our results with those already known, in a general corpus of Palestine pottery; and my forthcoming corpus of decorative motives traces the links of early civilisations. Next year, I hope that I may unearth more of the Hyksos civilisation. Miss Tufnell, Colt, and Myers, began work here.

In this outline, only those discoveries have been glanced at which built up our knowledge of history and culture, and many others have been passed by. Similarly, only one quarter of the students of the School who are now continuing such work, have been named.

We have paused to look back on the landmarks of stages in our knowledge during the last fifty years, and to look forward in faith that the next fifty years will see the joining up of our knowledge of all the east, out even to the Indus; thus the view of civilisations will be carried back into continuity with all the earlier ages of stone working, as one great prospect of the past of mankind.

Flinders Petrie.

A PHARAOH OF THE OLD KINGDOM.

In the collection at University College, London, there is a head (Figs. 1, 4) which has never received the attention it deserves. It was found by Professor Petrie in the temple of Koptos (Petrie, *Koptos*, pl. v, p. 11). It lay under a pavement made of sculptured slabs of Antef Nub-kheper-Ra, which had been re-used as

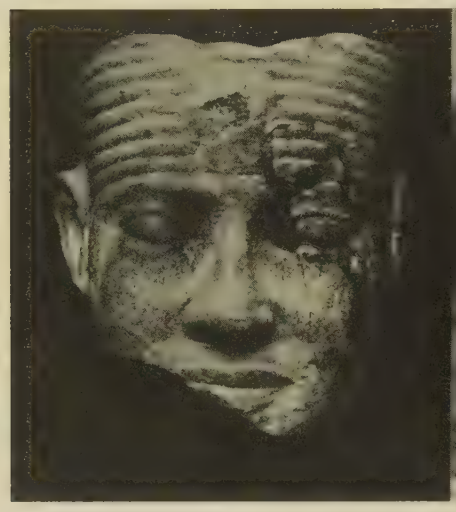

Fig. 1.

Fig. 2.

pavement blocks, apparently in the xiith dynasty. The material of the head is hard yellow limestone; the top of the head has been completely broken away, leaving a flattish surface; no part of the neck remains. The total height of the fragment is 8 cm.; the height of the figure, if in proportion with the canon of the Old Kingdom or Middle Kingdom, would be about 68 cm. if standing, but correspondingly shorter if seated. Professor Petrie called attention to the difference in the finish of the two ears; the right is carefully worked and stands out from the head like the natural ear, while the left is hardly more than roughed out; Professor Petrie suggested that this was done because the figure was part of a dyad. There is also some evidence for its having been an enthroned figure, for with it was found another fragment of the same kind of yellow limestone, sculptured with the design of the *sma*-sign with entwined lotus and papyrus (Fig. 5), the usual ornament on the side of a royal throne.

The head is that of a king, as the place from which the uraeus has been broken is very evident. At the back the rectangular support of a statue can be seen; such supports were known in early times for both standing or seated

figures. The headdress appears to be a turban wound in many folds round the head. As the top of the head is now broken away, there is no indication as to which of the royal headdresses was represented. I have already pointed out (*Anc. Egypt*, 1926, p. 36) that the crowns of Upper and Lower Egypt were probably turbans. From the shape of this headdress at the back, I suggest that it was the Red Crown, for the curve at the back of the head could not follow the line of the White Crown.

The lines of the headdress might at first sight be thought to be the beginning of the ordinary close-curled wig of the Old Kingdom, which had been left unfinished. The remains of the uraeus prove that the head is royal, and the close-curled wig is unknown for a king. A turban is therefore the only possible explanation.

The date of this interesting fragment is unknown and can only be recovered from internal evidence. It was found with pottery and other objects of the

Fig. 3. Fig. 4.

Proto-dynastic period under the sculptured slabs of Antef Nub-kheper-Ra, which had been laid face downward to form a pavement in the sanctuary of the Middle Kingdom. It therefore dates back to an early period. In style the face is that of an Old Kingdom Pharaoh, short and broad, the eyes well below the brow, the fossa not much elongated, the facial muscles well defined, the mouth straight with short upper lip, the ears true to nature in size and position, the uraeus flat against the head. Like all the best work of the Old Kingdom there is no exaggeration, the sculptor was one of the great artists who flourished in the ivth dynasty, the best period of the Old Kingdom. When compared with the portraits of the Pharaohs of that dynasty, the fragment so closely resembles the diorite statue of Khafra (Figs. 2, 3), especially in the side view, that it is more than probable that it is another portrait of that great king. The shape of the mouth and nose, the form of the cheeks, the setting of the eyes, the curve of the brows, are the same in the diorite statue and in this fragment. The material of the fragment, beautiful both in texture and in colour, would be appropriate to the Pharaoh who chose diorite for his funerary statues.

The fragment of the throne, if really belonging to the statue—as the material of which it is made, and the position in which it was found, would imply—is a piece of evidence not to be neglected. On the diorite statue, Khafra's throne is sculptured with the emblem of the union of the Two Lands in its early form, the plants of Upper and Lower Egypt twining round the *sma*-sign. As early as Senusert I, the design became more elaborate; Upper and Lower Egypt were personified as the two Niles energetically tying their respective plants to the *sma*. In this fragment the early form of the design is found; and the delicacy of workmanship and form of the lotus-flower not only points to the ivth dynasty as the period, but is almost precisely the same as on the throne of the diorite statue of Khafra.

M. A. Murray.

Fig. 5.

ROWING IN THE XVIIIth DYNASTY.

The methods of propulsion by oars of the ships of Ancient Egypt appear to have undergone various changes at different periods, as may be noticed in the tomb paintings, and temple reliefs, of the successive dynasties. In the temple at Deir el-Bahri there is shown a style which is different from that used anywhere else in the world. As this style seemed so peculiar, an experiment has been carried out, in an endeavour to reconstruct the stroke that was used. This experiment was more successful than was anticipated, and it may be of interest to put on record the method in which it was carried out, and to state the deductions which may be drawn from it.

Briefly put, it was noticed, in the drawings of the reliefs at Deir el-Bahri, representing incidents in the history of Queen Hatshepsut that, where scenes depicting boats were shewn, the rowers were represented in different attitudes. It was assumed, for reasons which will be stated later, that these positions were those of various phases of the stroke. The idea was to try and fill in between the positions, and to pass the result through a zoetrope. If successful it was hoped that some wretched slave, who had been comfortably dead for thirty five hundred years, might be brought to life and made to work again. He did.

Before describing the experiment it is desirable to give a brief review of the earlier methods by which ships were rowed.

In the time of the Old Kingdom the rowers face forward, and are shown with their hands apart, in fact the position is just the same as that adopted when paddling a canoe. This style of rowing is the most primitive of all methods, and is obviously the first step that would be taken after man had balanced himself astride of a log, or a bundle of reeds, and paddled himself by using his hands on each side. The transitional stage of this manner of propulsion is still in use, in the hand paddles employed when working up to duck in a gunning punt. The paddling stroke does not require the invention of rowlocks or thole pins.

The next step in rowing is shown in the tombs at Beni Hasan. In the tomb of Amenemhat, Governor of the Oryx nome in the xiith dynasty (24th century B.C.), there are shown two sailing ships towing a barge up stream (plates xiv and xvi). In the leading boat no rowers are shown, but a series of upright hooks are drawn which are presumably a form of thole pin. In the second boat, there are rowers, who face aft; they are standing to their work, with their feet apart and their hands close together. The oars, or sweeps, pass under the hooks, and on the fore side of the upright part, showing that they are obviously thole pins, which were bent over at the top to prevent the oar from being jerked upwards. To use these pins there must have been a loop of rope put round the oar and the pin, in order to transmit the leverage of the oar to the ship. This method of rowing is also shown in the tombs of Chnemhotep

(xiith dynasty) and Khety (xith dynasty). Two positions are shown, one at the beginning of the stroke in which the rowers are standing; the other is at the end of the stroke in which the rowers are sitting.

It is important to notice this point that two distinct positions are shown, and that at the end of the stroke, the rower sat down, an action which automatically lowered his hands and lifted the blade of the oar from the water.

This style of pulling may be seen on the Thames any day, it is used by lightermen on dumb barges. It was used in classical times in the trireme and is the second phase in the development of rowing, the transitional stage is to use a pin, or a notch in the side of the vessel, and to push the oar against this.

Fishermen when rowing a boat alone, and the "daiso" man at Malta, still row in this way; it enables a single man both to propel, and to guide his boat. When the boat is large enough to require several oarsmen, they can exert much more power if they face aft and get their backs into their work; in this case a helmsman is necessary.

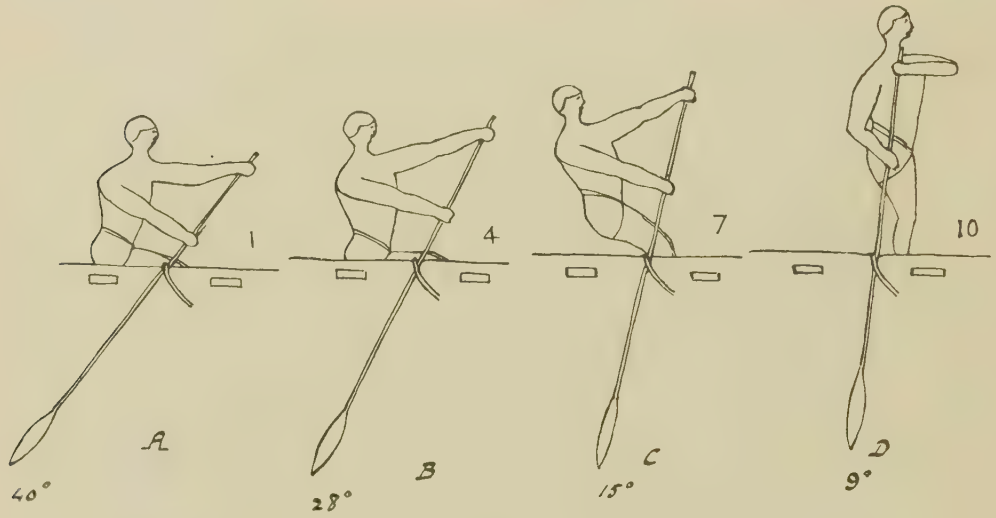

Fig. 1.

Original attitudes taken from drawings of Temple of Deir el-Bahri.

Coming now to the Deir el-Bahri reliefs, ships propelled by oars are shown in the following plates of "the Temple of Deir el-Bahri" by Edouard Naville; Vol. iii, plates 72, 73, 74, and 75 show the expedition to Punt; Vol. iv, plates 88 and 89 show a procession up the Nile; Vol. v, plates 122, 124, and 125 show boats towing a colossus up the Nile; whilst Vol. vi, plates 153 and 154 show the transport of the obelisks down the Nile.

In all these pictures it is possible to find four distinct positions for the rowers, namely two sitting in which the oarsmen are respectively leaning forwards and backwards, also there are two standing positions in one of which the rower is leaning back and in the other his position is upright and his left hand is folded across his chest. These four positions are reproduced in figures A, B, C, and D which have been copied (slightly enlarged) from plates 88 and 89. It is quite obvious that the rower may easily move from A to B by merely swinging back on his seat. Further a simple experiment may be tried with the aid of

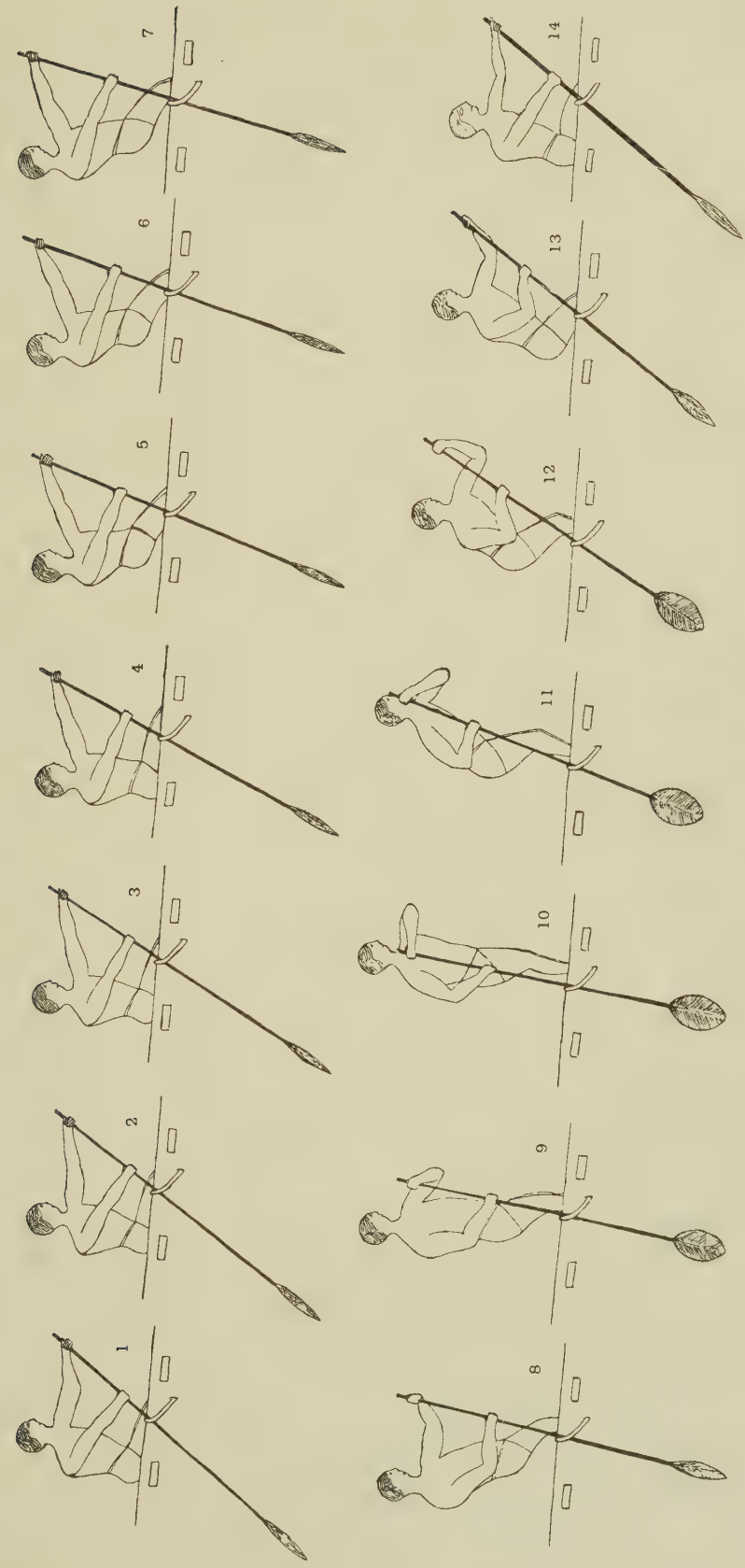

Fig 2.
Series of positions in the cycle of rowing action, from 1 on to the repeat in 14.

a walking stick. If the stick is held with the handle downwards, the hands being in the position shown in A or B, and the handle turned so that it represents the blade of the oar when making the stroke, then when the left hand is brought across the body as in position D it will be found that the handle of the stick has turned through a right angle. That is to say, the blade of the oar is edgeways to the direction of motion, or technically it has been "feathered."

This fact gave rise to the idea that when the Egyptian artist wished to show movement, he drew a series of pictures showing different phases of the action. A confirmation of this assumption was obtained from the drawings in the Beni-Hasan tombs. In the tomb of Baqt (No. 15) on plate 4 of part II, there is a series of five figures of women acrobats in the different attitudes of a jump. The way the arms are swung forward before the feet leave the ground in order to gain impetus for the leap is most natural. In fact the five positions might have been pictures cut from a cinematograph film. In plate 5 there are a number of phases of a wrestling match, though these do not appear to be in such a definite order as the acrobats.

As the practice of showing movement by drawing certain phases of the motion seemed to be well established in the xith and xiith dynasties, it was assumed that this held good in the xviiith.

The next step was to try whether the four positions A, B, C, and D could be combined into working stroke. The angles that the oar made with the vertical were measured and found to be 40° 28° 15° and 9°. As a trial these were spaced at equal distances along a base line, ordinates being set up to represent the angles. It was found that a fair curve could be drawn through the tops of the ordinates and it was therefore taken that the four original positions were attitudes at equal intervals of time.

Arrangements were made with the officers of the Science Museum at South Kensington to use one of their zoetropes. This machine had only thirteen slots, and consequently the whole cycle of motion (stroke and recovery) had to be got into thirteen pictures. In order to examine the stroke as fully as possible it was decided to allot the first ten pictures to the "stroke," leaving the remaining three for the "recovery." This virtually gives five pictures to the recovery as the first and last positions of the stroke are respectively the final and initial phases of the recovery. The four original positions as drawn by the Egyptian artist thus become ordinates I, IV, VII and X in the curve of angles of oar. Two ordinates were drawn between each pair to give the slope of the oar at each interval of time (see Fig. 3).

The next step was to adjust the length of the oar in each figure to be the same. It was found the B and C were the same length, that A was too long and D a little too short. The length of B and C was taken as correct. (This has been done in the figures shown, which have been enlarged from the originals on plates 88 and 89.) Taking the point where the oar passes through the loop as a fixed point and drawing the oar at each of the original angles, it was found that, by using B and C as definite points a very nice curve could be drawn through the tips of the blade. The locus of the end of the loom of the oar is obtained by measuring a constant length along the oar. These two curves are shown in diagram 4. It is obvious that the two curves are conjugate curves. As a further check the oarsman's head was taken as a circle, and the

position of the centre of this circle for each position of the oar was set out. A curve was drawn through the points so obtained. It may be remarked here that the curve originally drawn was subsequently modified slightly, but the four initial points were never moved.

The position of the oarsman's hands measured from the end of the loom was kept fixed. Thus for each of the six new positions in the stroke there were several points determined. The slope and the position of the oar were known from curves X and Y; and therefore the position of the rower's hands. The centre of his head was more or less definitely fixed inasmuch as it had to lie on a curve shown in Y. The length from the wrist to the elbow, and

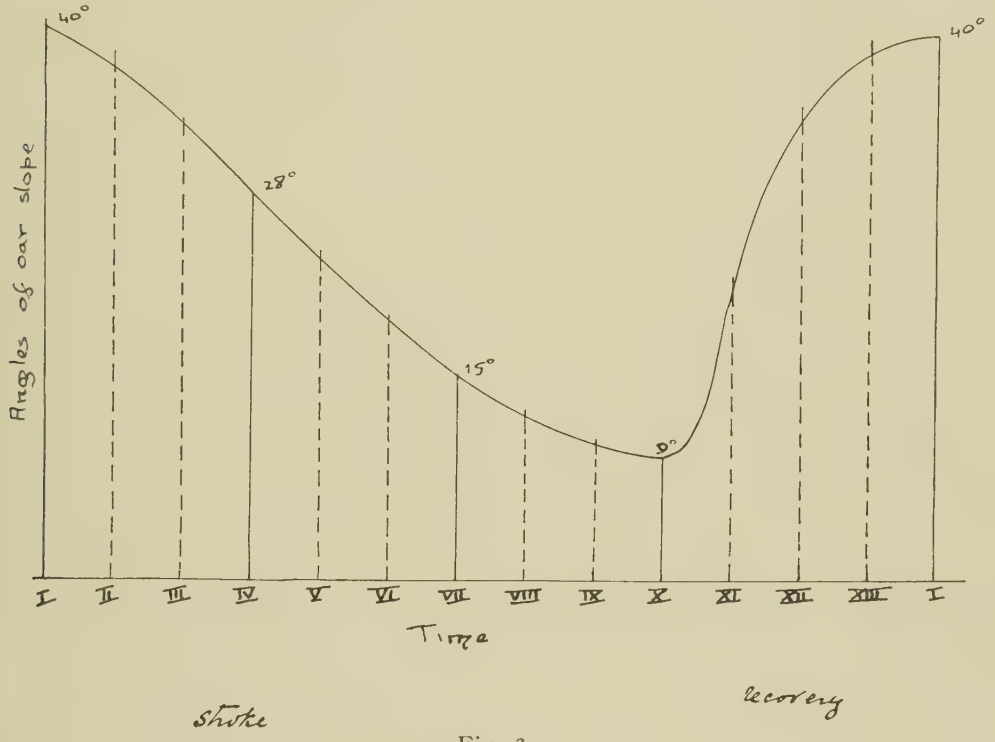

Fig. 3.

Shows the angle of the slope of the oar as ordinates, plotted on a base at equal intervals of time. Positions I. IV. VII and X shown by full lines are the original positions A. B. C. D respectively. The dotted lines show the angle of oar slope at intermediate positions. I to X is the "stroke," X to I is the "recovery."

from the elbow to the shoulder, must obviously be constant in drawings 1 to 7; in drawings 8 and 9, owing to the left arm being moved across the body, there is an alteration in the length of the forearm. With so much known for each figure, it did not require much knowledge of drawing to produce ten figures giving phases of the stroke at equal intervals of time. These phases were checked by superimposing successive figures upon each other and seeing that points such as the small of the back, and the intersection of the body and the left leg, or the point of the right elbow, were lying on continuous curves.

The "stroke" having thus been disposed of, it was next necessary to determine the "recovery." Here there were only the initial and final attitudes

known, namely 10 and 14. A different method had to be adopted. The attitudes of the last part of the stroke were practised in front of a mirror in an effort to determine what would be the natural way of continuing the movements. It was found that the easiest way to get from position 10 to position 14 when holding a stick, was to keep the left arm across the body, and to swing forward from the hips, and then, keeping the body bent forward, to slide into the sitting position at the same time straightening the arms.

Assuming this to be the probable way in which the recovery was made and knowing it to be a possible one; the process of drawing the figures was carried out as in the stroke. A curve of oar slopes using the same time interval as base was drawn more or less at random; curves of locus of the tip of the blade, and the end of the loom were sketched in; also the locus of the centre of the oarsman's head was completed as a smooth closed curve. From these curves three figures were drawn. It must be admitted that the first attempt was not at all satisfactory. However by making the rower raise his right hand, and by modifying the curves in Figs. 3 and 4 a convincing series was obtained at the third attempt. The figures obeyed the necessary geometrical conditions that various points of the oar and the body should lie on fair curves, and that the slope of the oar on a time base should also be a fair curve. The final results are shown in diagrams 3 and 4, and also in the series of thirteen figures that were put in the zoetrope, Fig. 2.

The next step was to try the movement in practice. The figures were mounted on a band, and placed inside the wheel of life at South Kensington. The wheel was spun. There was no doubt about it. He rowed.

The stroke was excellent, it was possible to observe him as he caught the water and, as he came upright, he really did get his back into the work. One could feel that the fellow was pulling.

The recovery was of course much too quick, and one felt oneself listening for the thud as he landed back on his seat. It was owing to the fewness of the number of slots in the machine, that the recovery appeared jerky; if three or even two more slots had been available, the action would have been as lifelike as that of the stroke.

The experiment may however be taken as a practical success, and the "drill by numbers" of rowing in the xviiith dynasty has been reconstructed. The form of rowing was a reversion to paddling, and at first sight seems a retrograde step from the style of the xiith dynasty. Further it does not seem to have been used by any other nation. In the Naval action shown at the Medinet Habu temple (about 1190 B.C.), the vessels of Ramses III are being rowed in this style; whereas the ships of the Greeks and Phoenicians are shown without oars. These carvings are more than three hundred years later that those of Hatshepsut.

It is consequently imperative to enquire into the reasons, if any, for the adoption of a peculiar style such as this.

First the oar is close to the ship's side and works through a loop, probably of leather. The oar slides endwise through this loop which has been well greased; leather would have been the most suitable material. The oarsman reaches well forward, throws his weight back on his oar, thus obtaining a quick catch; he then pulls himself up on his oar and so makes the most of his weight; the final movement when he brings his arm across automatically

feathers the blade. The stroke on the whole is a not inefficient one, it can easily be drilled in the head of a dull slave, as the action is automatic; it is a form of movement which would come easily to a native who is accustomed to squat on his hams. A modern European would find this style difficult, but

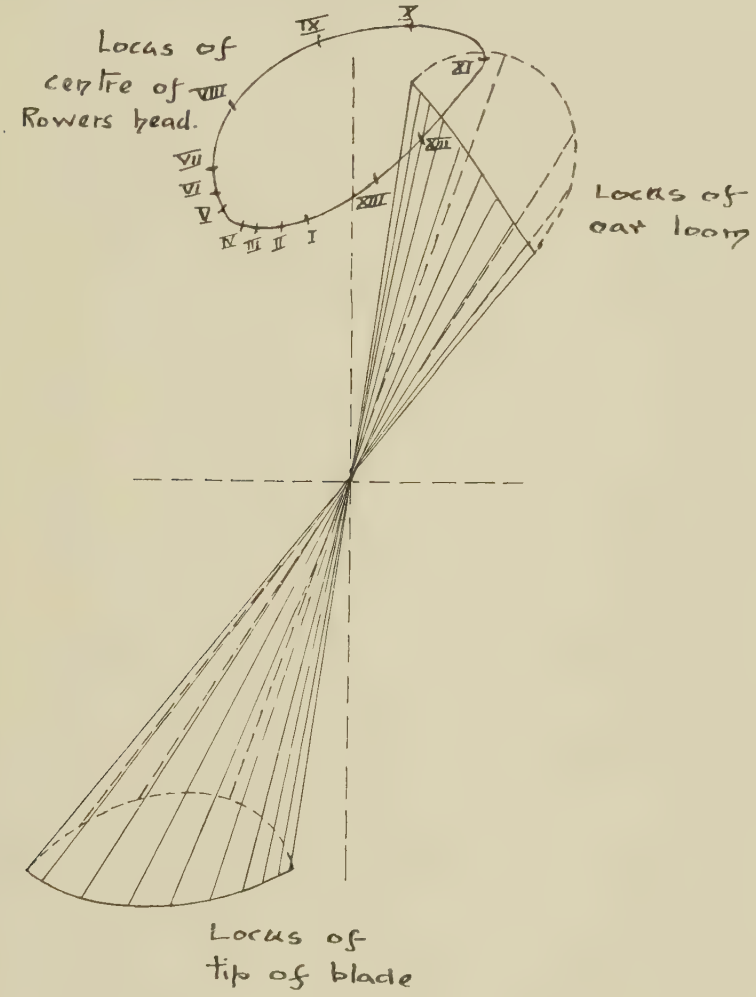

Fig. 4.

Shows the path traced out by the tip of the oar blade and the end of the loom. The full lines refer to the stroke and the dotted lines refer to the recovery. Also the path traced out by the centre of the rower's head giving the position at equal intervals of time. The two dotted axes are position lines through the point where the oar shaft crosses the gunwale. The locus of the rower's head and the ends of the oar are referred to these two axes.

a Chinese coolie would perform it almost naturally. It may therefore be taken that the reliefs at Deir el-Bahri show a real picture taken from life, and are quite possibly positions of the Egyptian drill book on rowing as taught to the slaves. All the other plates quoted show the rowers in one or other phases of this style. There is in addition another position shown on plates 72 and 73,

which depict the arrival at Punt. Here in the case of the small boat which has gone ashore, and of No. 2 ship, the rowers are shown with their hands reversed, that is the left hand below the right; the port side of the ship is still shown; in No. 1 ship no rowers are shown. It is not clear whether the rowers are backing water, or whether they are using the paddles as punt poles, and pushing the ship ahead. On the whole the latter idea is favoured. The point however is immaterial, except as a further confirmation of the view that the drawings are taken from actual life and are not conventional forms.

As the rower had to pull himself up on his oar it is likely that the stroke was a rapid one, probably about 40 to the minute. Also to make the recovery possible, and to assist in the stroke, his feet must have been secured to the deck by loops, or a stretcher must have been fitted *under* which he put his toes. The length of the stroke is only about 30°; that is a short chopping stroke, such as is used when pulling cutters or launches now-a-days in the Navy. This kind of fast short stroke is very suitable for a light draught high-sided vessel which does not carry its way well between the strokes. Such a vessel travels faster with a series of quick jerks than with a fewer number of slow intermittent pulls. The quick short stroke is probably less tiring than the long one, though that would have been a minor point, as a slave had no feelings, and the overseer had a whip with a large knot, as is invariably shown in the drawings.

It would seem therefore that the style produced a stroke eminently suitable to the type of vessel to be propelled.

There were also other advantages. If it is assumed that the paddles were about 10 feet long, (as they are kept close to the ship's side, this would have been ample), then the width of water on each side of the ship necessary for making the stroke would be about 2 feet. That is, a passage say 6 feet wider than the ship would be quite enough. If oars of the ordinary kind were used, these would have to be at least 15 feet long, of which 10 feet would be outboard requiring a width of water about 22 feet greater than the beam of the ship. That is, the channel had to be at least 16 feet or say 10 cubits wider, a consideration in a country that was highly canalized.

Again with the ordinary type of oar the loom comes 4 or 5 feet in board; with the paddle type the space required is the width of a man, not more than two feet. The paddle therefore gives an additional clear space of some 5 feet inside the ship which would be available for cargo or passengers.

Another suggestion which might be worth further investigation is that of the use of the paddles as lee boards. If the rowers took up position D (Fig. 1), either standing, or sitting, the blades would always be parallel to the ship's side and those to leeward would make quite efficient lee boards enabling the ship to sail with the wind abeam, and possibly go close hauled, though the xviiith dynasty sail is not suitable for this latter point of sailing. With the ordinary type of oar such a manoeuvre is impossible, or nearly so; it can be imitated by letting the oars stream aft, in which case the drag would probably counterbalance any advantage gained by checking leeway. This conjecture is purely theoretical as there is no evidence that the Egyptians knew the art of going to windward. There may however be good grounds for thinking that they could use a beam wind, which they might get from the monsoons during a passage down the Red Sea to Punt. The idea is merely put forward as

a feasible one but with no suggestion that it was a practice of the Egyptian navigator.

Summing up, the stroke shown was a fairly efficient one suited to the oarsman and to the vessel, extremely useful in canals. It allowed more room on board, and it had possibilities from a sailing point of view. It may be mentioned in passing that the Chinese have developed a sculling stroke and a specially designed oar or "Yuloh" for use in narrow waters and canals, so that it will be seen that the Egyptian style is not the only special development.

It may however be taken from this experiment that about 1600 B.C. the Egyptians did develope a special style, which is accurately shown in their drawings and carvings of that time. Since this style was specially suitable for narrow waters, and was not so convenient among waves, as the blade never comes clear of the water, it was not adopted by other nations. It appears to have lasted about 500 years, and probably died out during the Libyan period.

C. D. JARRETT-BELL.

ANCESTOR CULT IN ANCIENT EGYPT.

The preceding note on the *ka* confirmed and amplified, from various sources, Prof. Petrie's identification of it with an ancestral spirit; in this identity we have a well-defined trace of the existence, in ancient Egypt, of an ancestor cult. This was to be expected, for that cult was general, and Egypt in the first beginnings, as is becoming ever clearer, was not an isolated tract, but was in the general current of human development, including religious thought, in her quarter of the world. The practices that seem peculiar to her in historical times are based on primeval principles that guided man in his search after First Causes and the means to control them, from the Palaeolithic age, the earliest in which we find evidence of religious thought. On one side we have the cult of the mother-goddess[1] and on another the traces of ancestor cult, as we have seen above.

Now when Egypt emerged from barbarism and, with the high organization of agriculture, developed her civilisation, certain of the old elements suffered disguise, being masked by the newer ones which had arisen with her civilisation. The worship of the mother-goddess seems never to have been openly recognised in historical times but was merged in that of Hathor, who herself became, later, tributary to the Solar cult, while her functions were usurped by Isis, foremost goddess of the Osirian circle. Meanwhile the primitive ancestor cult took on forms which have somewhat obscured the essential principle; this will perhaps be made clearer by a general glance at the cult. It doubtless originated in fear, the terror which, even today, is so often connected with the spirits of the dead, as it was of old (see Pyramid Texts, Utt. 571). The dead left this world for a vague shadowy one like the Jewish Sheol, the Homeric Hades or the Babylonian Arâlu, where they were destined to remain, miserable and hungry, compelled even to pick up filth for food[2] unless they were ministered to by the living, with food, drink and clothing; if their wants were regularly provided, they would subsist in a state of well-being, able to aid and protect their descendants as they are still believed to do by many peoples, but if they were neglected they would, as direful ghosts, avenge their misery on the living. Thus the care of the dead by means of funerary offerings becomes reasonable, as a form of insurance for the living: from care given to the dead in general, or perhaps only to the more notable of them, it was but a step, and a natural

[1] See *Journ. Eg. Arch.*, v. XV (1929), pp. 30ff.

[2] It is interesting to note that this particular feature of misery is found in the beliefs of ancient Mesopotamia as in Egypt.

The conception of the Otherworld as a Sheol survived long in the Egyptian mind despite the paradisiacal aspect of it dwelt on by the priests; see, for example, the quotation given in the Reviews in *Ancient Egypt*, 1928, iii, p. 92:—"the grave 'is deep and dark, without door or window, without light... There the sun rises not and they lie the whole time in darkness.'"

one, for a family to pay duty to forefathers alone; here the tie of affection would enter, making the duty pleasanter and doubtless, in the minds of the descendants, more efficacious; thus the cult of the dead became that of ancestors.

In Egypt it was the son, particularly the eldest one, who was responsible for the periodical carrying out of funerary rites in the mortuary chapel of the father, before his statue. From inscriptions on early tombs[1] and from the funerary scenes, especially that of the banquet, depicted on tombs of all periods, we may see that the sons take the capital part. The Egyptians, a practical, and materially-minded people, deputed to paid ministers the somewhat irksome periodical rites; the Chinese, typical ancestor worshippers, still more practical, in avoiding this expense made the rites domestic and simple and thus more real and intimate.[2] Offspring were of course greatly desired, to ensure the continuance of the funerary offerings; in China this is a very anxious care, and earnest prayers are made to heaven for children; this was also the practice in ancient Mesopotamia, where literary traces of the cult are frequent.[3] In Egypt these traces are not so clear, but a remarkable instance of the reality of the cult is seen in an inscribed bowl dug up by Brunton and interpreted by Gardiner, *Qau and Badari*, I, 76–8; Gardiner and Sethe have recently published a collection of such documents in "Egyptian Letters to the Dead," comparing them with the leaden tablets which the Greeks and Romans buried in cemeteries, calling down on their enemies the curses of the spirits below. We learn from the Egyptian letters that a son, on suffering injury, would reproachfully call on one or both of his parents for help and that dead husbands or wives were also addressed in the same way, by means of letters deposited in the tombs; thus we see that the bond between living and dead was a very real one. Further evidence of its character is seen in the hymn to Senusert III in the *Kahun papyri*, second stanza, l. 3:—"Twice joyful are the forefathers; thou hast increased their portion," where the king is praised for the good that he has done for the ancestors, and, again, in such tomb-inscriptions as that of Amenemhêt of the xviiith dynasty:—"Mayest thou be a protection for thy children for ever and aye."[4]

I have drawn attention already to a publication by the Musée Guimet which is an excellent exposition of the effects of the practice of ancestor cult among civilised people with whom it forms an important part of the established religion. It is equally valuable to know what part it takes in the lives of a very primitive race such as the Veddas of Ceylon, and for this I would refer

[1] For an example, see Breasted, *Ancient Records*, v. I, pp. 86–7.

[2] The Egyptian ministers were designated by a sign-group read as *ḥm-ka* and interpreted as the "servant of the *ka*," but this might be rendered as "the warden of the funerary offerings" in accordance with Miss M. A. Murray's reading of the sign hitherto read as *ḥm* (*Ancient Egypt*, 1929, ii, p. 43) and my suggestion that the element read as *ka* is really *sḫn*, in accordance with the original form of the sign, signifying "care" or "protection," in *Journ. Eg. Arch.*, v. XV, p. 35, n. 2.

The modern equivalent of those ministers is the chantry-priest whose duty is, by offering regular prayers to the Deity, to effect the welfare of the departed soul, without, of course, any idea of reciprocal benefits for the living. With a similar turn of thought, in the later times of Mazdeism the funerary offerings came to be considered as devoted not to the *fravashi*, but to the gods, that they might cherish the *fravashi* of the dead.

[3] See Langdon's summary in Hastings' *Enc. of Rel. and Ethics*, v. IV, pp. 445–6 and R. C. Thompson, *The Devils and Evil Spirits of Babylonia*, v. I, pp. xxvii ff.

[4] See Davies and Gardiner, *The Tomb of Amenemhêt*, p. 102, last line of the ceiling inscription.

the reader to B. Z. and C. G. Seligman, *The Veddas*, chs. VI and VII, especially pp. 127–149, well epitomized by them in Hastings' "Enc. of Religion and Ethics," v. XII, p. 599. With this folk a tender feeling is dominant while, rather strangely, fear prevails among their neighbours, the Sinhalese, as it does—to take an example made famous by Gauguin—in the Marquesas. With the Veddas, too, we can actually observe the ancestral spirits—*yaku*—in process of becoming gods, a valuable support for that much contested theory which is miscalled Euhemerism.[1]

Ancestor cult in the early civilisations eventually culminated in the king, as son of the greatest and strongest of ancestors as well as the magical source of fertility. The king became a god—in China he was the "son of Heaven"—and it is probable that when, in the vth dynasty, the Egyptian king assumed the title "Son of the Sun," it was with the political object of extending to the newer sun-worship, now officially adopted, the popularity of the earlier cult of the great ancestral king, Osiris.

This cult, however, must have retained its popularity, at least among the lay members of the nation, and when, in later times, the state religion was worn weak by age and use and the inroads of foreign influence, Osiris became, with Isis, the outstanding object of devotion. In classical allusions to Egypt, they were always the most prominent figures. Of the pair, Isis enjoyed the greater prominence; she stood for the primeval mother-goddess, ever nearest to popular affection. She had taken over the mother function from Hathor in quite early times, as noted above—a compromise, doubtless, between the newer Osirian cult of the ancestor and the older one of the mother-goddess. A similar compromise between the Osirian and the still newer Solar cult explains a strange incongruity, one of many in Egyptian beliefs. It was conceived that the king was sprung from two different fathers, for though he was formally filiated to the Sun, he was still held to be, at least posthumously, the son of Osiris.

[1] The important part taken by the dead in primitive tribal life is explained with great clearness in chap. vi of "The Savage as he really is," by J. H. Driberg (Routledge, 6^{d}).

Erratum. 1929, p. 106, l. 24, after "life" insert "and not of mighty lords of battle" from next line.

G. D. Hornblower.

EXCAVATIONS AT GIZEH.

The Egyptian University began its excavations at Gizeh on December 11th, in front of the south side of the Sphinx. The following day walls came to light belonging to a tomb which we at first thought to be a small one, but the next day we discovered some large limestone blocks bearing hieroglyphic inscriptions, and there was then no doubt that we had to do with an important tomb.

This was confirmed when we saw appear before us, at a depth of about $5\frac{1}{2}$ metres, a very large lintel, bearing the name and some of the titles of the owner of the tomb, and then a second one at a metre below it. Each lintel is formed of a single block.

We then found the façade of the tomb, bearing inscriptions also giving the name and some of the titles of the deceased.

Continuing our work, we found that the tomb is composed of two galleries and a large number of *serdabs*; up to now we have about six large and 14 small ones; this is peculiar, for usually a dead man has but one serdab. The chambers discovered in this tomb up to now (including the serdabs) are about 60 in number. The part of the tomb laid bare so far is about 120 metres long and from 20 to 40 metres wide.

It may be mentioned that the builder of the tomb followed the surface of the underlying rock, for the façade begins on an elevated part of the rock, and then descends gradually in such a way that the difference in level between the façade and the part laid bare up to now amounts to about six metres. The surveyors who have helped me to plan the tomb have found the proportions to be very exact. We have discovered bases and fragments of 14 columns, of which one in alabaster, is about 3 metres in circumference.

The owner of this tomb was called Ra-wer; he lived under Nefer-ar-ka-ra the third king of the vth dynasty, as is shown by an inscription commemorating the tomb and the date of its construction. His titles are very numerous, including those of High Priest of the Goddesses of Upper Egypt (Nekhbet) and Lower Egypt (Wazet), Chief Secretary of the King, his sole confidant, Overseer of the Wardrobe and Guardian of the Royal Diadems, one of the chief Dignitaries of the King, &c.

In the tomb there were numerous statues of him, about 40 in all, carved in various stones—white limestone, black granite, granular stones, sandstone and alabaster.

Of complete statues we have found only three, cut in a single block of sandstone and all representing the owner of the tomb. The other statues found are mostly mutilated, and the greater number of them are broken up. Two are in their original positions and are in fairly good condition; both are in shrines, the whole being cut from a single block.

We have found two intact heads of granite and four of white limestone, all executed in a very finished style.

A most remarkable object is a statue-base of alabaster, of very fine work. In the sand which covered the mastaba of Ra-wer we found a statue representing a seated woman, and a limestone stele representing Ra-wer and before him his

mother, with her hands on her breast. The prince wears a panther skin showing that he was a priest. This monument is of the best Old Kingdom work.

In a corner of one of the serdabs were found copper tools used for the foundation; the tools were all agglomerated together by oxidation.

The inscriptions of this mastaba, although very mutilated, are of historical texts, in which it is stated that the owner of the tomb caused the stones with which it was built to be brought from the quarries of Tura.

The clearing of the tomb is in progress; it is the largest private tomb of the Old Kingdom known. The burial chamber has not yet been found.

Another mastaba was found beside it, which seems to belong to a member of Ra-wer's family. In the funerary chamber of this little mastaba we found a sarcophagus cut in the rock which a robber had broken open, but he had not been able to carry anything away, having fallen dead beside the sarcophagus. Within this, a valuable necklace still remained. This necklace was composed of two pieces of gold, each of semi-circular form and ending in plaited gold threads of very fine work. Altogether it contained 600 gold beads and about 2500 lapis-lazuli beads. Four canopic jars were with the sarcophagus.

We have also brought to light a rock-cut tomb belonging to a person named Zefanisut; the chambers were six in number; in them we found a small statue of the deceased in white limestone and two statues cut in the rock. These latter had been mutilated by robbers, and one was overthrown.

We have also begun to clear the tomb of a great prince named Kanefert. A part of the hall of offerings is already laid bare. Its walls were adorned with representations of women bearing offerings and water; over each woman is inscribed the name of the objects she is carrying, and the domain from which they came. We have since begun to clear another chamber of this prince's tomb on the walls of which were represented scenes of his daily life. This chamber was re-used as a tomb at the end of the Pharaonic period, for we found in it a number of mummies piled up; these were in bad condition with the exception of one still in its coffin, which bears the name of the deceased with funerary inscriptions and prayer texts. We found nothing in this tomb except the inscriptions engraved on the façade which give the titles of the deceased.

In front of the façade were two vases; it seems that these are not Egyptian, but were imported from Nubia.

Much more work is needed to clear this tomb completely.

A large number of shafts led to funerary chambers, to the number of over 60; most of them are small and not deep. In one of them lay a granite head; the funerary chamber of this shaft is under water.

In two of the shafts we found a few small pieces of gold leaf left behind by the robbers. High up in one of the pits, we found seven leaves which have kept their shape, also a small necklace of semi-precious stones.

We have also found a necklace composed of 86 blue beads and 19 perforated stars in the middle of which there is a crescent.

We found this crescent on the neck of the mummy of a small person in a tomb, between those of Ra-wer and Zefanisut. We have also found several steles bearing fine inscriptions, and various other objects too numerous to mention. A large number of shafts have still to be cleared.

Selim Hasan.

REVIEWS.

Die Sprache des Pentateuch in ihren Beziehungen zum Ägyptischen. By A. S. Yahuda. Vol. I (De Gruyter & Co., 1929).

We have been waiting for many years for a book on these lines. It is such an obvious piece of work for one thoroughly acquainted with both the Egyptian and the Hebrew languages to do, that we are surprised such a book has never been written before.

One might naturally expect that in the Joseph and Exodus narratives there might be evidences of the use of original Egyptian documents, or other evidences of Egyptian influence and contact, but it needed an expert in the knowledge of both languages to deal with the problem.

Mr. A. S. Yahuda has tackled it and dealt with it in a thoroughly scholarly manner. That his conclusions may not be accepted by specialists in Hebrew who do not know Egyptian, or specialists in Egyptian who do not know Hebrew so well, is quite likely. That they will not be palatable to many is also perhaps quite to be expected, and Mr. Yahuda's book may receive much severe criticism. A careful perusal of the book, however, can hardly fail to convince an open-minded reader that his deductions are correct, or at least have a sound basis of fact behind them: and of course there will be many who will welcome his conclusions and the further deductions that may be made from them. He practically establishes the fact that the Joseph narratives of Genesis and the Exodus narratives dealing with Israel in Egypt are actually based on original documents written in Egyptian, and drawn up by one who not only knew and was familiar with the Egyptian language of the Court and nobility, but was so scrupulously exact in his narrative that he frequently quotes the actual words of the original.

Whether the documents he used were the actual Egyptian accounts of the incidents recorded in Genesis, or other such documents which the narrator used as models, perhaps cannot be absolutely determined; but there is no doubt left in our minds that the writer of the original document of Genesis was thoroughly intimate with the Egyptian language, its idioms and style, as well as Egyptian customs of the priesthood and the Court, and is careful to choose his language accordingly. Where he found no Hebrew word to express the exact meaning of the Egyptian, he paraphrases or coins a word based on the corresponding Hebrew root. In other words, though expressing himself in Hebrew, he writes as an Egyptian would write.

In the whole presentation of the conversation between Pharaoh and Joseph we have a correct picture of a Courtly conversation of the upper ranks of Egyptian society. Both in his manners and his methods of expression, the

narrator makes Joseph appear as a Courtier at home in Court language, a thorough master of all the niceties of official phraseology. All the turns of expression are permeated with the spirit of the Egyptian language and the manner in which King and subordinates converse bears the stamp of Egyptian throughout.

Very finely does the narrator depict Joseph playing the part of a real Egyptian when talking to his brethren before he revealed his identity to them. The whole conversation between him and Pharaoh corresponds so completely with all that we know of Egyptian Court-setting, with all the peculiarities and niceties of an established Court usage, that the whole incident could only have been depicted in so accurate a manner by a person who had known all these usages from direct personal observation.

This means that the historical setting of these narratives is correct, and implies the probability that the narrative, as we have it, is based on records contemporary with the incidents recorded.

To take some examples from the Joseph narrative: In Genesis xli. 40 "according to thy word shall all my people be ruled" of the A.V. gives the ultimate general sense, but the note suggesting "kiss" in place of "be ruled" is the correct translation. In the Egyptian instead of the usual word *wnm* for "eat" or "feed," the word *s'n* "kiss" was used. The Egyptian idiom was "kiss the food," and here the narrator has preserved the Egyptian idiom. The correct literal translation of the passage is therefore "shall my people kiss their food," i.e., "at thy command shall my people eat."

In Genesis xliii. 34 the Hebrew word for "portions" or "messes" (מַשְׂאֵת) is an analogous formation to the Egyptian word used of "offerings to a god" or "presents to a King" from the verb *fȝy*, "to lift up," and implies that they were "carried high," "exalted" as we see on monuments where such scenes are depicted. The Hebrew word is formed from (נשׂא) the verb which means to "lift up."

Great honour was thus paid to his guests by Joseph since their portions were sent them from his own table and were "carried to them as offerings to a god" or "presents to a King" are carried. This seems to have been the practice in Egypt also in the case of distinguished guests. The passage is thus accurately Egyptian in its setting, and the narrator has carefully chosen the word as a direct translation of the Egyptian word used in such cases.

Elsewhere the word occurs in the Old Testament in the sense of "something lifted up," "a burden," "a sign."

In 2 Samuel xi. 8 the word is again used in this sense where "there followed Uriah to his house a portion from the King's table."

Mr. Yahuda regards the use of the word "bread" (לֶחֶם) here in the sense of "a meal" as also indicating Egyptian influence. The Hebrew would speak of "bread and water," "bread and salt," but the Egyptian used always the word "Bread" alone in this sense to express "Meals" and "Meal-times"—and "bread and beer" as the essential part of a food-offering—not only because "bread" was then, as it still is, the staple form of diet in Egypt, but because no other people has ever cultivated the art of bread-making to such a degree as the Egyptians.

In Genesis xli. 41 the expression, "נתן ל, "to nominate to office," and Genesis xlv. 8, "שם ל, "to appoint to office" correspond exactly with the

Egyptian idioms *rdy r* "to give for (i.e. nominate as)": and *wdy r* or *m*, "to appoint."

In the last clause of Genesis xli. 43 the infinitive is used with vav (וְנָתוֹן) "and he made him to be over all the land" though it follows vav with the imperfect. In Egyptian, the author states, the infinitive is used as an emphatic imperative being frequently the opening word of a command or Edict. The Israelite stele e.g. begins with an infinitive as imperative according to the reading of the author,[1] and priestly documents use it continually. Gesenius (Heb. Gr. p. 289) gives four examples of its use in Hebrew from Exodus and Deuteronomy. There is however conflict of opinion as to the use of infinitive as imperative in Egyptian.

Mr. Yahuda regards נָתוֹן here as infinitive used as imperative in direct speech, the narrator quoting the exact words of Pharaoh's command instead of throwing it into indirect speech as in the preceding part of the verse. This, he thinks, explains what has hitherto been a grammatical difficulty. It explains also the use of the infinitive in the commandments in the passages Exodus xx. 8 : Deut. v. 12 : Num. xv. 33.

In Genesis xliii. 16 again the words are the exact words of Joseph reproduced by the narrator, or the words which the narrator knew he would certainly have used.

This use of the infinitive "is a characteristic form of expression which of all other Semitic languages occurs only in the Hebrew": and, "exactly as in the Egyptian, is used in the legal sections as well as the introductory form in festal proclamations, with poetic emphasis."

The author concludes that the narrator here expresses himself exactly as the highest Egyptian nobility were wont to express themselves, and we have here a true tradition which must go back to the time when the Egyptian sense of language and intimate acquaintance with its peculiarities of style and refinements of expression were still fresh in their minds.

Similarly the expression "stand before Pharaoh" in Genesis xli. 46, &c. is a verbal rendering of the Egyptian expression in common use. In Genesis xlv. 1 the "standing ones" are the Court officials and servants on duty in the King's presence" not casual onlookers or witnesses.

But the Egyptian word, *ḥ'w*, here quoted by the author, generally means "bystanders," "crowds," or "masses"; and the word for "Courtiers" is *šnwt* which means "surrounders."

The same word occurs in Exodus ix. 16 in the Hiphil form "I have caused thee to stand," i.e. "to live," and in Egyptian the word for "stand" is constantly used in the same sense of "duration of life," especially in poetical passages and prayers.

The careful observation of Egyptian Court etiquette is remarked in Genesis xli. 10 : 25–35, where the butler and Joseph address the King in the third person, not the second person. Frequently "Thy person," "Thy majesty," and even the indefinite pronoun "one" is used in Egyptian—a custom which goes back to the earliest times. The same formula of respect is used in the case of Joseph, the Vizier, in xliii. 15, 34.

The word "Lords" as applied to Pharaoh and Joseph in the construct state (Genesis xl. 1 : xlii. 30, 33 : xliv. 8 : 7, 9), the author regards as a Dual

[1] With this, I understand, Steindorff agrees.

Construct, referring to their being "Lords over the two lands." When the brethren address the Steward who was sent after them, however, they used the singular (xliv. 7 and 9).

The use of "Thy servant" or "Thy servants" to avoid the first person in that passage (xliv. 7 and 9) is also typical of Egyptian Court etiquette.

Perhaps one of the most interesting instances is the oath used in Genesis xlii. 15, 16 "By the life of Pharaoh." Swearing by the life of the King, common all over the East, was not so usual in Egypt, but was an oath of unusual solemnity. It was the most impressive adjuration that could be used. In Egyptian, therefore, it is less common than the oath "By the Gods," and used only where the deepest impression is intended to be made.

The words on the lips of Joseph are a clear intimation to his brethren that it is a matter of life and death and as such it was understood by them.

The frequent use of "Elohim," the plural form for "God" on the lips of the Hebrews in the Joseph narrative Mr. Yahuda regards also as characteristically Egyptian and a concession to Egyptian usage. The narrator makes Joseph speak exactly as an Egyptian would speak and Elohim is a direct translation of the Egyptian plural *ntr·w* "Gods," though it may have been even distasteful to a Hebrew.

There is, therefore, a point in the fact that in Exodus the narrator avoids making Moses use the word "Elohim" alone in his conversations with Pharaoh, but introduces the new and more impressive name "Yahveh."

The title given to Joseph (Genesis xli. 43 מִשְׁנֶה) "the Vizier," which literally means "a repetition of the King," "the King's double," is exactly the same word as the Egyptian *śnw* (from *śn* = two). Both are derived from the same root in each language. The Dignities and Powers bestowed on Joseph are also exactly those detailed on a tomb inscription of Rekhmara, a Vizier of Thothmes III.

From this inscription and other monuments we gather that the Vizier is after the King the First in the Kingdom, exactly as stated in Genesis xli. 40 "Only in the throne will I be greater than thou." In the King's absence he acts as King, and in his presence as mediator (Genesis xli. 44). He passes on all orders or Royal edicts. He is the medium of consultation, and the supreme Judge in all disputes between officials, as well as in all criminal cases. He carries the King's signet ring, is Head of his house, and Head manager of the Crown lands. Thus as stated in Genesis he was King in everything but the throne.

Similarly from Egyptian representations of the cerémony of installation of the Vizier we gather that the statement of Genesis xli. 42 is quite correct. The Vizier had the King's signet ring bestowed on him. He was clothed in fine linen, and he wore a gold chain of office. It was a further distinction that in acknowledgment of his lofty dignity they cried before him "Abrēk" as he drove through the city (Genesis xli. 43). This may mean that outrunners preceded him shouting "Abrēk," or that the bystanders shouted the word as he passed.

The brief way in which the narrator mentions these (Genesis xli. 42–43), indicates that he was speaking of things well known to those for whom he wrote.

The main significance for us, however, lies not so much in the correspondence of detail as in the word-clothing and forms of expression which plainly bespeak an Egyptian background.

In Genesis xlv. 8, 41–46 Joseph speaks of himself as Father to Pharaoh, Lord of his house, and overlord of the two lands. These expressions mean that he was (1) a Priestly dignitary: (2) House chamberlain: and (3) Overseer of Egypt: and can have been used only by one who was thoroughly acquainted with the Priestly institutions of Egypt and who knew that these three offices were the weightiest and most significant vested in the person of the Vizier or King's Double.

Under the second chapter dealing with Egyptian Titles and Honours in the Joseph narrative, the author explains the threefold duties of Joseph, the use of the dual form (מִצְרַיִם) "the two lands" for Egypt: the use of (הָאִישׁ) "The Man" (Genesis xliii. 2) in referring to Joseph: the interpreter (Genesis xlii. 23): the name Zaphnath-paaneah given to Joseph by Pharaoh: the word שַׂר or "Prince" as Title of a high Egyptian Dignitary: the word "Mouth" in Exodus iv. 15 and the use of the royal title "Pharaoh."

Succeeding chapters deal with ordinary expressions and renderings after Egyptian style: expressions where parts of the body are figuratively used: the head: the eye of the land: lip for brim or edge of river: mouth for command, &c.: proverbial idioms and current expressions from the Egyptian: and words borrowed from Egyptian.

In Part II of the Volume eight chapters are devoted to the pre-Egyptian epoch in the Pentateuch and the narratives of Genesis. These deal with linguistic analogies and differences in the Hebrew and Accadian Texts of the Genesis Legends: the Egyptian elements in the Creation narrative, in the story of Paradise, the Fall through Sin, and the "Sin-flood Legend": words and expressions borrowed, or translated from Egyptian or modelled on Egyptian forms of expression.

The closing chapter deals with the preponderance of Egyptian elements: and a few other expressions such as Kasdim, Hiddekel, Hanikhim (חֲנִיכִים Genesis xiv. 14) "trained servants, or dependents"; נְעָרִים "young men" (xiv. 24), and בְּרָכָה a "blessing" in the sense of "an offering" Genesis xxxiii. 11.

The book is bound to attract attention and will well repay a close perusal. It is of special value to the student of the Old Testament language and History, and its conclusions will be highly acceptable to all who desire to see the authenticity of any ancient document established on as firm a basis as possible.

It is one of the most valuable of recent contributions to the constructive criticism of the Old Testament language and literature. An English Translation of the book is in the Press and will, we understand, shortly be issued.

J. Garrow Duncan.

Studies in Egyptian Chronology. By T. Nicklin. Part II. The Sothic Cycle. 8vo, 24 pp., 1929 (Toulmin, Blackburn).

The scheme of Dr. Nicklin's proposals has been given in our number in 1929, p. 35. Here we read Norman Lockyer "gave fresh reality" to the Sothic year by his theory of temple pointing. That, however, had nothing to do with the Sothic year, and those theories are now quite discredited by observations. The history of views on chronology is strangely unknown to most writers, who continually harp on entirely fictitious statements. In reality the long chronology was that of the Greek writers, Herodotus and Manetho, it was

generally accepted by Champollion and his followers. It was not till Bunsen and Lepsius that it was proposed to abandon it, and adopt a position which they thought they understood better than the earlier writers. After abandoning what had long been accepted, every one made a different guess as to what the dates should be. In 1899 Berlin assumed that only the vague year could have been used, and disregarded the solar or seasonal year, and also two other calendars used by the Egyptians. On this assumption the Kahun papyrus either agreed with the long chronology or else gave an impossibly short period. There the trouble remained until now we see that the seasonal year—still used by the Egyptians—would remove the difficulty; the scarabs showed how the Hyksos had overlapped Egyptian history, and we are now free to use the well authenticated dynastic periods which have been transmitted to us. Let us hope we shall hear no more fictions about inserting a Sothic period; it was always accepted until Bunsen cut it out.

It is proposed in this pamphlet, to assume a rearrangement of the months of the calendar to fit new facts. But there is not the least need for such a drastic and arbitrary course. The well known seasonal calendar, by which each of the three seasons are plainly named, agrees with all the facts (see *Ancient Egypt* 1929, June). An equally unhappy guess is made that by "a small lens they would be able in some years at least to observe Sirius rising a day earlier." No lens, large or small, would do that, only a telescope of two or more lenses, and there is no trace of any such invention.

An enormous amount of theorizing is based here on differences of one or two days in the observations. This is out of touch with reality. It would be very difficult to make sure of catching sight of Sirius in the morning glow of sunrise one day rather than the next. Then at different parts of Egypt the observations would vary with latitude. Further there is a matter which has been neglected by all theorists; when the precessional motion shifted the ecliptic on the starry sphere, Sirius would be a very different distance from the sun's course, and hence many days' difference would arise in actual observation.

The final appeal to dates asserted by Albright is futile, as he has based his dates on the Berlin scale, which is the matter in question; it is making the copyist authenticate his master. More familiarity with actual observation, with astronomical complications, and with original M.S. sources would change Dr. Nicklin's views.

Mohenjo-Daro. 4to, 10 pp. (Indian State Railways).

The rigid reservation of all accounts of the great Indian excavations (no Annual Reports since 1925) makes even a railway pamphlet valuable, especially as it is by Mrs. Mackay who has taken part in all her husband's work there. This long deserted city, of some five thousand years ago, was called the "Place of the Dead," Mohenjo-daro, by the present people. It differs from any site in the near east by being built of burnt bricks, showing fine and precise work. A notable feature is the drainage system with vaulted drains, six feet high, beneath the streets. The bathrooms, paved with bricks, and the streets, were thus drained. The lay-out of the houses is in square blocks with straight streets between. As yet, only the later buildings have been cleared, but there are several older cities beneath this, and stonework has been reached 25 feet down in a well. There seems thus to be a series of cities reaching back to

perhaps eight or ten thousand years ago, like the series of pre-flood cities found at Ur.

The sculpture is stiff, and limited in its detail. Hair is closely lined out, but the ear is simply oval. The features are fairly well rendered, and the style is like the much later Arabian sculptures. The robe is covered with the trefoil pattern well known in Iraq. The square engraved seals, with short legends above a bull or elephant, are also closely like seals found in Iraq.

The only bronze figure is of a lanky nude girl, with the right fist on the hip. On the left arm she has 17 and 11 bangles close together, and two on the right arm. They are hardly ornament, but may represent wealth, or the honorific tokens of her many admirers in the past, as was the custom in some other lands. The hair is drawn from both sides, twisted, and then tied together. Another figure, in pottery, is of a woman wearing nine necklaces descending one below the other down to the girdle. The mode of representing them by lines and blobs, and the whole style, is closely like pottery figures of about the xiith dynasty.

An upright cylindrical vase and cover of silver was found containing a large quantity of jewelry, necklaces, finger rings, and beads of jadeite and gold. The whole was wrapped up in a cloth of cotton, the oldest use of that fibre yet known. Another important connection with the West is that of the weights. Hundreds of such are found, carefully wrought: the usual standard averages within $\frac{1}{2}$ per cent of the Sumerian standard weight, the same as the higher family of the gold standard of Egypt, the oldest standard of the prehistoric age there. Another standard was occasionally used at Mohenjo, equal to a frequent standard in Palestine and in Egypt from the pyramid age. These weights prove what important commerce the people had, and how they were mainly linked with Sumeria, before the well-known Babylonian shekel had come into the field.

The working out of the successive civilisations of early India and of early Iraq will give a marvellous extension of view of the growth and decay of the many stages of man.

NOTES AND NEWS.

Half-Century Celebration of Flinders Petrie's Researches.

This year, 1930, we have the half-century celebration of Flinders Petrie's researches. It will be marked by various events. This week, a dinner will be given at the Savoy, by Dr. Robert Mond, to a large number of the Professor's colleagues and students, and friends associated in his work.

On his birthday, Lady Newnes' Egypt Matinée took place at the Hippodrome, which was filled by an enthusiastic audience. This was an ambitious pageant, ranging over 8,000 years of Egyptian history, from which dramatic incidents were chosen, and represented in fourteen carefully rendered tableaux and moving tableaux. The cast numbered 81 people and a white pigeon. The scenes were accompanied with ancient music, adapted by Mrs. Julia Chatterton, on replicas of Egyptian instruments. A congratulatory address, signed by many

archaeologists and other savants, was presented by Captain Spencer-Churchill, in celebration of the half-centenary.

The performance opened with the dawn of civilisation, and showed Badarian man, and the prehistoric fresco of Hierakonpolis. Mr. Terence Gray's play, in which Khufu ordains his pyramid, was next acted. Then the *deng* dwarf danced before little King Pepy, the princess of the Lahun Treasure appeared, and various Shepherd Kings; wall-sculptures of Akhenaten were faithfully represented; the dramatic scene of the twelve pharaohs followed. The final scenes led up to the tragic end of Cleopatra and the decline of Egypt.

This matinée was given in aid of the British School of Egyptian Archaeology, which celebrates its twenty-fifth year. It is the first time that an attempt has been made to illustrate Egypt throughout the centuries.

A Vision of the Ages, by Flinders Petrie, 8vo, 24 pp. with 12 illustrations, 2/9*d* post free.

This small book, with blue lotus on its green cover, contains short sketches of some of the chief periods of Egyptian history, illustrated with a few photographs of the more interesting discoveries. H. P.

The expedition of the British School of Egyptian Archaeology at Beth-pelet, under the direction of Mr. Starkey, Mr. Harding, Mr. Colt, and Mr. Macdonald, has completed the search of the Hyksos cemetery, also of the xviiith dynasty Residency, and cleared a long line of tombs of the Philistine age in continuation of those found in the western fosse of the town. Mr. Macdonald has specially worked ten neolithic settlements, in the earliest of which were found model dogs, suggesting the "dog tribe" of Caleb; this points to the Kenezites being aborigines, two or three thousand years before the Exodus. Various links with the Egyptian prehistoric products are found, and the series ends with a dagger from a fine site of early Copper Age. The chain of types in flint work and pottery will enable us to place these sites in sequence. A full account will appear in the next journal.

The regrettable delay in issuing this part is due to the loss of the MSS. in the post between Rome and Vienna, which was not ascertained for some weeks.

Probable Alteration of Date of July Exhibition.

It was intended to have the Annual Exhibition of antiquities open early in July. There has, however, been so long a delay on the part of the Palestine Government in passing the boxes, that it will not be ready until Wednesday 9th July.

The Exhibition will be chiefly of Hyksos and Egyptian discoveries from Beth-pelet, Palestine, with a large collection from the Neolithic settlements. Admission free, without ticket.

It will be open from July 9th to 31st 10–5 (and evenings of 15th and 25th 6.30–8 p.m.).